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A COMPENSATED DOLLAR

SUMMARY

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ON September 26, 1912, I made a brief report, for one of the sections of the International Congress of Chambers of Commerce, on the high cost of living. In that report I briefly described a proposal for rendering the gold standard more "stable" by virtually increasing the weight of the gold dollar so as to compensate for losses of purchasing power.

In the present paper I shall endeavor to explain the details of the plan. I shall assume that the reader is already aware of the following important facts: (1) that during the last fifteen years throughout the gold standard world, the general level of prices has been rising, or, in other words, the purchasing power of gold has been falling; (2) that it is at least likely that the same upward movement of prices will con-

tinue for many years to come;<sup>1</sup> (3) that this progressive shrinkage in the purchasing power of gold is a serious menace to the stability of business, affecting especially all long time investments, resulting in the substitution of speculative for sound business conditions, and disturbing the normal relations between those forms of income or prices which are relatively fixed, such as interest, rent, salaries, and wages, and those which are more promptly adjusted, such as the prices of most staple commodities.

The plan aims to make the purchasing power of the dollar constant. It would compensate for any loss of purchasing power of each grain of gold by increasing the number of grains which go to make a dollar.<sup>2</sup> In other words it aims to standardize the dollar as a unit of purchasing power. We have standardized the yard, the pound, the kilowatt, and every other important commercial unit except the most important of all, the dollar, the unit of purchasing power. We have now a gold dollar of constant weight, but of varying purchasing power. We need a dollar of constant purchasing power and varying weight.

The use of money originated to meet the need for a medium of exchange and not to supply a standard of value or, in other words, a standard of deferred payments. The reason for this was that when money began to be differentiated from other commodities there was a real need of a medium of exchange, but no great need of a standard of deferred payments.

<sup>1</sup> See "Will the Present Upward Trend of World Prices Continue?" by Irving Fisher, in *The American Economic Review*, September, 1912.

<sup>2</sup> The idea of increasing the weight of gold constituting the monetary unit had, I learn, previously been suggested by Woodrow Wilson, now President Elect of the United States, and by Mr. William C. Foster of Watertown, Mass. I also find that the plan here suggested is somewhat similar to a hint once thrown out by Professor Alfred Marshall, now Emeritus Professor at Cambridge University. (See *Contemporary Review*, March, 1887, "Remedies for Fluctuations in General Prices," p. 371, footnote.)

Contracts involving any considerable length of time were then unknown. Today, on the other hand, one of the most striking facts about business is the great network of contracts which binds each generation to the next.

The qualities, therefore, which led originally to the choice of any particular form of money, such as gold, were simply the qualities of a good medium of exchange — concentration of large value in small weight, portability, durability, divisibility, salability as merchandise, etc. The result is that we are now employing as a standard of deferred payments a metal originally selected wholly without reference to that function but exclusively because of its fitness to serve as a medium of exchange. It so happens that, as a standard of deferred payments, gold has not proved reliable. Anyone who will read the literature of the last decade of rising prices or the previous literature in the '80s and '90s of falling prices, will realize the shallowness of the notion that "gold is stable." I commend especially the reading of Sir David Barbour's recent book, *The Standard of Value*, which contains an analytical study both of the long period of falling prices, 1873-96, and of the present period of rising prices, beginning in 1897. As Sir David Barbour has so well shown, it would help greatly if, instead of using the phrase "a rise in general prices," we should ordinarily use the equivalent phrase, "a fall in the purchasing power of the dollar." Periodically in the history of the world gold has been discovered in great quantities or new metallurgical methods of obtaining it have been developed; while at other times the mines have become suddenly exhausted and the metal relatively scarce. Moreover, the value, *i. e.*, the purchasing power, of gold must naturally be

subject to innumerable other influences—such as the volume of bank notes, credit, velocity of circulation, and volume of trade, as well as myriads of antecedent causes.

As we have drifted into the use of a monetary yardstick unadapted to the needs of a modern community with contracts extending far into the future, we have seldom discussed or even considered the need of its stability. For this reason there have only been occasional and extremely academic discussions of a stable standard of value.

A number of impracticable proposals have been made. These have been criticised in the closing chapter of my book, *The Purchasing Power of Money*. The so-called multiple standard of value which would continue our present dollar as a medium of exchange, but create an ideal unit for time contracts, has attracted many, but it does not appeal to business men and their objections are well grounded. Not only would the multiple standard necessitate much laborious calculation in translating from the medium of exchange into the standard of deferred payments, and back again but, if, as has been suggested, the employment of a multiple standard were at first optional, the result would be that many business men whose prosperity depended on a narrow margin between their expenses and receipts would be injured rather than benefited by having one side of their accounts predominantly in the actual dollar and the other in the ideal unit. They are quite right in preferring to have both sides vary together in order that the margin between them shall vary comparatively little rather than to have one side vary less than the other and therefore the margin between them vary all the more.

The chief objection, however, to most methods for solving the problem of a stable standard of deferred

payments is that they involve a manipulation of the currency by Government officials. This would give a power so great to these officials as to be a constant danger to business. The power might be abused, and even if it were not, there would be a constant fear that it might. This fear of itself would probably be a greater injury to business than any stability which might be acquired under such systems. If any plan of stabilizing the dollar is ever actually adopted it must be one that works as automatically as the mint now works and is not subject to the judgment of any official.

The following is a plan which meets this condition. It is to virtually (tho not literally) increase the weight of the gold dollar and to vary that weight from time to time so as to maintain a constant purchasing power.

Today prices are nearly 50% above the level of 1896; that is, a dollar will now buy about two-thirds of what it would buy then. Yet the dollar has remained the same in weight — 25.8 grains. If the plan here proposed had been in operation since 1896, the weight of the gold dollar would virtually (but not literally) have increased until today it would have been heavy enough to possess 50% more purchasing power than it actually does possess, *i. e.*, as much as the dollar of 1896 possessed. For simplicity of illustration we may for the present assume that a gold dollar weighing 50% more than the existing dollar of 25.8 grains would have 50% more purchasing power; that, in other words, if the gold dollar of today weighed 38.7 grains, it would buy what the actual dollar of 25.8 grains bought in 1896. The level of prices would then be the same today (in terms of this supposed heavier dollar of 38.7 grains) as it was in 1896 (in terms of the actual dollar of 25.8 grains).

In order to have preserved this same level of prices throughout the period 1896–1912 it would only have been necessary, beginning in 1896, to have increased gradually the weight of the dollar. This gradual increase in the weight of the dollar would have taken the place of the increase in prices which has actually been experienced in the last fifteen years. Of course we cannot now return to the price level of fifteen years ago but we can, accepting the present level of prices, prevent any further rise by (virtually) putting more weight into the dollar. The increasing number of grains of bullion going to make a dollar would then compensate for the lessening purchasing power of each grain. The plan may therefore be called a plan for “a compensated dollar.”

But how could such an increase in the dollar-weight be accomplished? How could the weight of the dollar be increased without literally having gold dollars of many different weights in circulation or suffering the annoyance of incessant recoinage? How also could we know the proper number of grains to be added to the dollar from time to time?

We can best answer these questions a step at a time. We may conveniently distinguish two different cases: (a) the hypothetical case in which gold is supposed to circulate only through gold certificates, and (b) the actual conditions now existing in the gold standard world.

It is interesting to note in passing that the first or supposititious case is at present nearly realized in the United States. There are a billion dollars of gold in the United States Treasury, the great mass of which does not belong to the Government but constitutes a trust fund for the banks and people holding gold certificates representing ownership thereto. Very little

gold actually circulates. For simplicity, however, we shall for the moment suppose that no gold coin at all were in circulation in the United States, but only gold certificates, and that all the gold in the Treasury were in bullion form. Suppose further, that it were the uniform practice when gold bullion was taken to the mint not to coin it but to issue only gold certificates for it. The situation would then be absolutely uncomplicated by gold coins. Gold would exist only as bullion, entering the Treasury whenever gold miners brought it there in exchange for gold certificates and coming out of the Treasury when holders of gold certificates exchanged them for bullion.

As there would be no coin dollar, the only gold dollar would be a *virtual* gold dollar consisting of each 25.8 grains of gold ( $9/10$  fine) in the gold bars of bullion kept in the Treasury. A gold bar weighing 25,800 grains would contain 1000 *virtual* dollars. This virtual dollar may also be called the "redemption-bullion." Similarly, we may call the quantity of bullion accepted at the mint in exchange for each dollar of gold certificates, the "mint-bullion." At present both the "mint-bullion" and the "redemption-bullion" are the same, 25.8 grains.

In the language of commerce the two operations of issuing and redeeming certificates may be expressed by saying that the Government buys and sells gold (for certificates) at a fixed price. This fixed price, as it is at present, is easily computed. Since each gold dollar consists of 25.8 grains of gold  $9/10$  fine and since there are 480 grains in the ounce Troy, it requires  $480 \div 25.8$ , or 18.60 gold dollars to weigh one ounce. Consequently the price of gold ( $9/10$  fine) must be \$18.60 per ounce. It follows that, when gold bullion is taken to the mint we may, if we please, say that the

Government buys gold bullion and pays for it in gold certificates at a "mint-price" of \$18.60 per ounce; and also that when, on the other hand, these certificates are presented for redemption in bullion the Government sells gold bullion, receiving in payment gold certificates at a "redemption-price" of \$18.60 an ounce. It is evident that the proposal here made to raise the weight of a gold dollar above 25.8 grains (or, more specifically, to raise the weight of the redemption-bullion and the mint-bullion) is, otherwise expressed, a proposal to lower the price (*i. e.*, the redemption-price and the mint-price) of gold bullion below \$18.60. At present the Government buys and sells at the same price; that is, both the mint-price and redemption-price are the same, \$18.60 per ounce. One essential detail of the present proposal is to put a small margin (say 1%) between the two Government prices, the mint-price and the redemption-price; or, otherwise expressed, to put a slight margin between the mint-bullion and the redemption-bullion. The mint-price would be the lower of the two prices and therefore the mint-bullion, the higher of the two bullions. The margin of, say, 1% may be regarded as a "brassage" charge for minting.<sup>1</sup>

With this premise the proposal may be said to be a proposal merely to readjust, from time to time, the Government pair of prices for gold, keeping always, of course, the constant margin of 1% between them.

The important question remains: how can we know what changes to make from time to time in the weight of the redemption-bullion or "virtual dollar"? The answer is: By index numbers of prices, such as those

<sup>1</sup> The real purpose, however, of this brassage charge is to safeguard the Treasury against speculation in gold through a proviso that the pair of Government prices shall never be shifted up or down, at any one time, by more than the margin between them. How this proviso would prevent such speculation will be explained later.

of Sauerbeck, *The Economist*, the British Board of Trade, the United States Bureau of Labor, the Canadian Department of Labour, Bradstreet, or Gibson. Almost any one of these would afford a good guide and they all agree fairly well. Elsewhere<sup>1</sup> I have discussed in detail the relative merits of forty-four different forms of index numbers.

When once a system of index numbers is decided upon, their numerical calculation becomes a mere matter of clerical arithmetic, admitting of little or no discretion on the part of the compiler. If the official index number should at any time show the price level to deviate by, say,  $\frac{1}{2}\%$  above the base level from which the system started, it would become mandatory to correct the mint-bullion and redemption-bullion by increasing them  $\frac{1}{2}\%$  (*i. e.*, to decrease the bullion prices by  $\frac{1}{2}\%$ ) and similarly for any other deviation from par<sup>2</sup>—subject, of course, to the restrictions above imposed. Thus if the price level deviated by 3% below the original par, then, assuming a brassage of 1% and the adjustment quarterly, the redemption-bullion could be corrected only to the extent of 1% in any one quarter of the year; but the full correction of 3% could be reached in three quarters unless the deviation were aggravated in the meantime; and in that case the correction would follow steadily on the heels of the deviation.

The plan then, without abandoning the gold standard, assimilates it to the multiple standard.

We have still to explain a few complications. In view of the fact that gold coin exists and is in circula-

<sup>1</sup> The Purchasing Power of Money, ch. x and Appendix to ch. x.

<sup>2</sup> The system, however, does not absolutely require that the correction to be applied to the weight of the redemption-bullion shall be exactly *equal* to the deviation from par of the index number. So long as the correction varies directly with the deviation it may be somewhat greater or somewhat less. See Appendix III.

tion, the actual proposal is complicated slightly by this fact. Yet the appearance on the scene of coined gold does not complicate the mechanism as greatly as might at first be supposed; for gold coin would then be, in effect, merely gold certificates printed on gold. Each gold dollar of 25.8 grains would confer on the holder exactly the same rights as those possessed by the holder of ordinary gold certificates printed on paper. Gold dollars would, in such a system, be mere tokens — like brass checks — entitling the holder to gold bullion.<sup>1</sup> That is, the actual literal gold dollar of 25.8 grains would give the holder a claim on gold bullion in the Treasury to a greater amount than 25.8 grains. The only real complication introduced by admitting gold coin into the proposed system consists in the fact that the “virtual dollar” or the redemption-bullion in which gold certificates and gold coin are redeemable can never be permitted to fall in weight lower than the weight of the gold dollar, 25.8 grains. Waiving this complication for the moment and assuming that the redemption-bullion or virtual dollar always exceeds in weight the coin dollar, it will be seen that the proposal involves no change whatever in the currency of any country. Some kind of coins and paper money would be passed from hand to hand and the ordinary man would be quite unaware of any change and as unconscious of the operation of the new system as he is now unconscious of the operation of the present system. The only persons who would notice the change would be the gold miners who bring gold to the mint (who would find that the price they could get would not always be \$18.60 per ounce) and

<sup>1</sup> It should go without saying that all gold dollars, whether old or new, *i. e.*, whether originally minted for 25.8 grains of bullion or minted at a later period for a larger amount of bullion, would be redeemable at any time in the same quantity of “redemption-bullion” without discrimination.

the jewelers and others who desire gold bullion (who would find that the Sub-Treasury would be furnishing them gold bars at not always \$18.60 per ounce.<sup>1</sup>

If we suppose, for instance, that the redemption-bullion had been gradually increased since 1896 until today it were 50% heavier, or 38.7 grains, while the actual gold dollar were still 25.8 grains, the Government would now be redeeming on demand each gold dollar (of 25.8 grains) in 38.7 grains of gold bullion.

As to convertibility in the other direction, the Government mint would (had the system been adopted in 1896) now be prepared to give back a gold dollar for each 38.7 grains of bullion plus the coinage fee or "brassage" of, say, 1%. This brassage of 1% would then be .387 grains to be added to the 38.7, making 39.087 grains in all as the bullion required at the mint to procure a gold dollar. This would be the "mint-bullion."

Here we see clearly illustrated the two quanta of gold bullion, slightly differing from each other — 38.7 grains and 39.087 grains — the former, or "redemption-bullion," being the quantum which the Government would *give* for a gold dollar and the latter, or "mint-bullion," being the quantum it would *take* for a dollar. The total difference between the mint-bullion (39.087 grains) and the bullion in the gold dollar (25.8 grains) is 13.287 grains and would be retained by the Government as a part of its bullion reserve for redeeming gold coin. Of this 13.287 grains only .387 is brassage;

<sup>1</sup> Altho it is not necessary that the bullion in the gold dollar shall be equal to the bullion or "virtual" dollar in which it is redeemable, it is most emphatically essential that coin dollars shall be redeemable in bullion on demand. It is this provision for unlimited redemption on demand which, with the provision for the unlimited coinage (or purchase by the Government) of gold bullion, provides for the automatic retirement on the one hand or issue on the other of gold coin or certificates. Moreover it is the possibility of turning gold dollars or gold certificates into commercial bullion which is the essence of the gold standard. Without some sort of convertibility into bullion, we should not have a gold standard at all, but only fiat money.

the remainder, 12.9 grains, may, for want of a better term, be called "seigniorage." That is, the so-called seigniorage is the difference in weight between the literal dollar and the virtual dollar, — the bullion in which it could be redeemed. The plan might therefore be roughly described as one to restore the ancient custom of seigniorage,<sup>1</sup> the purpose of the seigniorage being to act as a sort of dam or tariff to impede the influx of gold at the mint. This is the one sluiceway by which it may enter the circulation and, unlike the mines, it is a sluiceway over which we have control. If, at any time, the redemption-bullion was 38.7 grains, the *redemption-price* would of course be two-thirds of the present price, *i. e.*  $\frac{25.8}{38.7}$  of \$18.60 or \$12.40 per ounce, while the *mint-price* would be  $\frac{25.8}{39.087}$  of \$18.60 or \$12.28 per ounce. Thus the Government would stand ready to sell gold at \$12.40 and to buy it at \$12.28, the difference, 12 cents per ounce, being the "brassage" or Government commission.<sup>2</sup>

<sup>1</sup> This "seigniorage" would, however, be a peculiar sort of seigniorage in that (1) it would be created not by reducing the weight of the coin, but by increasing the weight of bullion behind it; (2) it would not be fixed arbitrarily, but would be automatically adjusted from time to time (as later explained); and (3) it would not belong to the Government for its own profit, but would be part of a trust fund to be used for redemption purposes only.

<sup>2</sup> For convenience of reference we may here collect the technical terms employed and their definitions: —

(1) *Redemption-bullion* is the amount of gold bullion given by the Government in redeeming each dollar of gold coin (or gold certificates). This is the "virtual dollar."

(2) *Mint-bullion* is the amount of gold bullion required by the Government for each gold dollar of gold coins minted (or dollar of gold certificates issued).

(3) *Brassage* is the (slight) excess in weight of the mint-bullion over the redemption-bullion.

(4) *Seigniorage* is the excess in weight of the redemption-bullion over the gold dollar (in other words the excess in weight of the virtual over the literal dollar).

(5) *Redemption-price* (the reciprocal of redemption-bullion) is the amount of gold coin (or certificates) received by the Government for an ounce of gold bullion.

(6) *Mint-price* (the reciprocal of mint-bullion) is the amount of gold coin (or certificates) given by the Government for an ounce of gold bullion.

The two operations, selling (or redemption) and buying (or minting), would keep the value of the dollar not less than the redemption-bullion, or 38.7 grains, and not more than the mint-bullion, or 39.087. In other words, the official prices for selling and buying gold would fix its market price between the limits<sup>1</sup> of \$12.40 and \$12.28 per ounce.

<sup>1</sup> These two limits are like the two "gold points" in foreign exchange or the two limits in the gold exchange standard. Thus in Austria the Austro-Hungarian bank stands ready to buy gold at K. 3,278 per kilo, but sells it, or rather claims on it in London (exchange on London) at a slightly higher price. The actual price of gold bullion in the open market might be any price within the two limits set by the Government just as the price of foreign exchange may now be any price between the "gold points." If at any time the market price falls between the two limits — *i. e.*, is greater than the mint-price and lower than the redemption-price — there will be no redemption and no minting. For no one would sell bullion to the Government for \$12.28 an ounce when he could get a higher price in the market, nor buy bullion of the Government for \$12.40 an ounce when he could get it cheaper in the market. Minting would only occur when the mint-price ruled the market, and redemption only when the redemption-price ruled the market. Practically it would usually be true, in all probability, that the mint-price would rule and that minting would go on, *i. e.*, that there would be much more minting than redemption. Nevertheless the redemption-price serves a very important purpose. It acts as an effective deterrent to coining the seigniorage and so inflating the currency. So long as the Government makes itself seriously responsible for redemption it could not afford to coin much of its reserve. To do so would tend to inflate the currency, raise the price of bullion and lead to buying it of the Government, or in other words to redeeming gold coin in bullion. If the Government wishes to coin its bullion it could do so up to the point where the redundant coin so produced flows back. The operation is thus self-limiting, just as in the Philippines, or in other countries having the gold exchange standard. The obligation of the Government to sell exchange on gold would set a limit to the extent to which it could inflate the currency. But, while this obligation of itself imposes prudence, sound financiering would naturally demand that, in adopting the system, we should incorporate the principle now employed as to the gold reserve behind the gold certificates, namely that no gold should be coined on Government account, but all gold bullion received at the mint in exchange for gold certificates or coin should be regarded just as it is at present, namely as a trust fund, not belonging to the Government but to the holders of the gold certificates (and coin) in circulation. It would, of course, now be possible, up to a certain point, for the Government to coin some of its trust fund of gold and still be able to redeem all gold certificates presented. But this would be Government banking. The present legal requirement which treats this gold as a trust fund on deposit and not belonging to the Government is a safe and sound policy and should be continued unchanged and unaffected by the increase in the weight of the redemption-bullion. In countries where no such fund already exists, the Government must, of course, acquire the necessary bullion reserve. Judging from experience with the gold exchange standard, however, the reserve needed would not be great. (See Conant "The Gold Exchange Standard in the Light of Experience," *Economic Journal*, June, 1909, pp. 190-200.) Of course the Government would not add any redemption responsibilities other than to redeem gold coin in bullion. Banks and other institutions having redemption obligations would still have them unchanged, their redemption being in coin and not in bullion. Thus the introduction of the adjustable seigniorage system would not make necessary any substantial changes in banking or currency laws other than to make the Government responsible for buying and selling gold bullion at the specified rates.

As already remarked, the "seigniorage" must never, of course, be negative. If, for instance, the mint-bullion were 12.9 grains, half as much bullion as is in the coin dollar, every dollar of 25.8 grains could be melted and the bullion so obtained taken to the mint and exchanged for two coin dollars, these melted and converted into four, and so on in an "endless chain." An obvious proviso in the proposed plan is therefore that the redemption-bullion (or, at the utmost, the mint-bullion) must never be lighter than the dollar itself. The present indications are that gold will continue to lose in purchasing power so that the redemption-bullion, in order to maintain the same purchasing power as the present dollar, would need in general to increase in weight in the future. If, however, it should ever happen that the redemption-bullion should shrink in weight again to 25.8 grains, then the proviso that it should never fall below this figure would come into operation. So long as it remained at 25.8 grains it would cease to be adjustable and to maintain a constant purchasing power. It would then have a constant weight, but varying purchasing power just as at present. It is probably better not to cross that bridge till we come to it; for, if my conclusions as to the future course of prices are correct, we probably never shall come to it. We need only provide, in advance, that when, if ever, we do come to it and the index number actually shrinks below par by a substantial amount (say 10%), then all gold coin is to be withdrawn from circulation and gold certificates substituted (or new gold coins of lighter weight). Of course any reduction in the weight of gold coin would produce no impairment of its value so long as it remained redeemable in bullion possessing the original purchasing power. A good instance of such

a reduction of weight with just such a purpose was that made in the peso when the gold exchange system was adopted in the Philippines.<sup>1</sup>

We are now ready to explain why two prices — the mint-price and the redemption-price — of gold are necessary. If the Government were to both buy and sell at the same price, every expected shift of that price would lead to speculation embarrassing to the Government. For instance, if the mint-price were today, say, \$18 per ounce and if it were known or expected that tomorrow the price would be raised to \$18.50, speculators would today buy of the Government gold bullion and sell it back tomorrow at an advance of fifty cents per ounce. This would be costly to the Government and might temporarily exhaust its gold reserve. The opposite speculation would accompany a drop in the official price. This would also be costly to the Government tho it would (temporarily) increase its gold reserve. If, however, the Government protects itself by charging a slightly higher price than it pays, it is evident that no such speculation would ensue if a provision be made that this pair of prices shall not be shifted by more than the margin between them.<sup>2</sup>

Let us suppose that the two prices differ by a “brassage” margin of 1%, and that the pair of prices are to be adjusted quarterly. This permits a maximum movement up or down of 4% per annum which, tho it may not be always sufficient to maintain absolutely constant the purchasing power of the monetary unit, will always tend in that direction.<sup>3</sup> It is evident that

<sup>1</sup> At first the attempt was made to institute the gold exchange standard without disturbing the weight of the peso, but in consequence of an unexpected rise in silver it was later decided to reduce the weight from 374 grains to 247 grains.

<sup>2</sup> See Appendix I.

<sup>3</sup> It would be possible and perhaps advisable also to provide against speculating for a rise in the price of bullion over a period covering two successive dates for adjusting the Government prices by specifying that even if the brassage margin were wide enough

under such a system gold would still be the ultimate means of redemption and it would still be coined freely (*i. e.*, *ad libitum*). Its inflow and outflow into circulation through gold certificates would therefore still regulate the value of the dollar between adjustment dates, just as at present. But there would be a continued correction of the weight of the (virtual) dollar so as to restore its original purchasing power when altered. It would thus be a multiple standard realized in practice instead of merely an ideal money of account, like the tabular standard, separate from the actual money in our pockets.

The plan then in brief is:

(1) *To institute an official index number of prices, selecting some initial year, as the base of reference, the price level for that year being called 100%.*

(2) *The Government or Governments thereafter to re-adjust the official weight of the "redemption-bullion" or the "virtual dollar" (the quantum of bullion in which it will redeem the gold dollar) at regular intervals, say monthly, according to the findings of the index number. If in any month the index number deviates from par, the redemption-bullion is to be corrected in proportion to the deviation, provided however*

(a) *that no one shift in the weight of the redemption-bullion shall exceed the "brassage" (say 1%) nor such stated limits as will safeguard the Government from injurious speculations and*

(b) *that the redemption-bullion shall in no case be of less weight than the coin dollar.*

and the interval between adjustments short enough to admit of a rapid rise or fall of Government prices, nevertheless the rise should be limited to a rate less than the ordinary rate of interest on risky and short term investments so that there would be no possible object in withdrawing gold from the Treasury in order to hold it for a rise at future dates. If the rise was limited to 4% per annum or 1% per quarter this condition would be met. In fact a considerably larger rate might be permitted. Probably, in fact, any restriction at all would be quite unnecessary as such speculation in gold would be no more common than speculation in silver at present. See also Appendix I.

(3) *The Government to be responsible at all times for redeeming on demand gold coins (or certificates) in redemption-bullion and for minting bullion at the same rate (except for the "brassage" of, say, 1%); in other words, the Government to be always ready to sell gold bullion at the redemption-price and to buy it at the mint-price (the redemption-price less the "brassage").*

The following tables and diagram have been calculated by the method detailed in the Appendix, and show approximately what the index number would have been had the system here proposed been in actual use under the different conditions assumed. Three sets of calculations are made.

The first supposes the system to have been instituted in January, 1897, and employs 1896 as a base. This calculation assumes a brassage charge of 1% and a quarterly readjustment not to exceed that amount.

The second also starts in January, 1897, and employs the same base, but supposes a brassage of 3% with a maximum possible quarterly increase in the weight of the redemption-bullion of that amount (3%), but a maximum decrease of only 1%.<sup>1</sup>

The third assumes the system to have been inaugurated January, 1904, to be operated monthly instead of quarterly, to be based on the price level of December, 1903, as 100% and to have a brassage charge of 1½% with a maximum single increase in the weight of the redemption-bullion of that amount (1½%) and a maximum decrease of ½%.

I shall not take the space here to enter the results of all these calculations. The method is fully described in Appendix II. In brief it may be explained by an example taken from the midst of the third calculation.

<sup>1</sup> The results would be practically the same if the brassage were 1% but the frequency of change were once a month for an increase in weight and once a quarter for a decrease; but the calculations involved would have been much more laborious.

For January, 1910, the index number of prices was, as a matter of history, 18.8% higher than that of December, 1903 (according to the tables of the Bureau of Labor). In other words, if we call the price level of December, 1903, 100%, that of January, 1910, was 118.8%. If, however, the system here proposed had been in operation, the index number January, 1910, would have been 100.4, or only .4% above par. This .4% excess above par, therefore, would have then served as a signal to add .4% to the weight of the gold dollar, raising it from 30 grains, the amount at which it would have stood in December, 1909, to 30.12 grains. This change would have been made in January, 1910. The result would be that in February, 1910 (assuming that the effect of this increase in the weight of the dollar would be fully felt within the month), the price level would be .4% below what it otherwise would have been. The historical fact, however, was that the price level rose from January to February by .1%. Therefore this tendency to rise would have been blended with the decreasing effect of the increase in the weight of the dollar so that the final result would be the net effect of the two — a fall of .3% making an index number of 100.1; in other words ( $100.4 - .4 + .1 = 100.1$ ). The same principles apply, of course, to a movement in the opposite direction. The results of the third calculation show a remarkable maintenance of parity. In actual practice it is reasonable to suppose that the approximation to par would be even more close, for three reasons: —

(1) If the plan were ever to be in actual use the index numbers used would be an average of the figures for several countries and would therefore be less subject to spasmodic fluctuations than those for one country (especially when that country is the United States).

It is always noticeable that the fluctuations of the price level are the less the greater the range of markets covered.

(2) The period here selected for illustration (1896-1911) was one of unusual variability of prices.

(3) If the proposed system were in actual use, some of the forces which have been hitherto responsible for the larger fluctuations would be non-existent. These large fluctuations have usually been incident to credit convulsions which were themselves due to upward price movements previously accumulated. An upward price movement when once started inflames itself, so to speak, until arrested by a crisis, after which there is a sharp reaction. Under the system here proposed there would be no opportunity for such progressive inflation and subsequent collapse; for each incipient movement is nipped in the very bud. Consequently under the proposed system the index number would probably seldom deviate from par by more than 1%.

The only opposing consideration is that the effect of correcting the redemption-bullion might not be fully felt within a month. There is reason to believe that it would be mostly felt within that time, but even if not and if the effect were spread over several months and blended with the other effects in that time, it could be shown by similar calculations that a close approach to parity would be maintained.

The following condensed table made from the first of the three calculations (by the method fully detailed in Appendix II) shows approximately what the index number would have been since 1896 if the proposed system had been adopted January 1, 1897, as contrasted with what it has actually been. It also shows what the weight of the bullion dollar would have been compared with what it has actually been (25.8 grains).

		The Index No.		The Virtual Dollar (in grains)	
		As it was	As it would have been	As it was	As it would have been
1896		100.0	100.0	25.8	25.8
1897	January ....	98.5	97.5	"	25.8
	April .....	96.2	95.2	"	25.8
	July .....	98.5	97.5	"	25.8
	October ....	104.0	103.0	"	26.1
1898	January ....	105.1	103.1	"	26.3
	April .....	108.4	105.3	"	26.6
	July .....	100.7	97.2	"	26.3
	October ....	98.5	96.0	"	26.1
1899	January ....	104.0	102.5	"	26.3
1900	January ....	123.2	115.8	"	27.3
1901	January ....	119.8	109.0	"	28.4
1902	January ....	122.0	106.9	"	29.7
1903	January ....	128.2	107.9	"	31.0
1904	January ....	125.2	101.5	"	32.3
1905	January ....	126.1	102.0	"	32.3
1906	January ....	133.6	104.6	"	33.5
1907	January ....	141.5	106.4	"	34.8
1908	January ....	139.0	100.7	"	36.4
1909	January ....	137.2	101.6	"	35.6
1910	January ....	146.8	104.5	"	36.9
1911	January ....	142.6	98.5	"	37.4

According to these figures, whereas in January, 1911, prices were 42.6% higher than in 1896, they would have been under the proposed system 1.5% lower. The weight of the bullion dollar would have been 37.4 grains instead of 25.8. It would have begun to increase in October, 1897, which is the first time the price level rose above that of 1896. After October, instead of having a dollar of constant weight but diminishing purchasing power, we would have had a virtual dollar of increasing weight but fairly constant purchasing

power. It is true that during the years 1899–1900, when an unprecedented rise of prices occurred, the system proposed would only have mitigated the rise. But its inadequacy at that time was due to the narrow limitations we have imposed, viz., a margin of possible change in the weight of the virtual dollar of only 1% and a frequency of change of only once a quarter. But if we allow a larger latitude, as in the second calculation, the index number under the proposed system works out still closer to par. The results of this second calculation are given in the diagram attached.

A still closer approach to par is found in the third calculation with its monthly readjustments. The condensed table on page 234 shows the contrast between the three calculations.

In summary it may be said that the plan may be called,—

With respect to its purpose:

A plan to assimilate the gold standard to the multiple standard;

*i. e.*, to convert the *gold* standard into a true gold *standard*.

*i. e.*, to make a stable dollar.

*i. e.*, to standardize the dollar as a unit of purchasing power.

*i. e.*, to change from a gold dollar of constant weight and varying purchasing power to a gold dollar of constant purchasing power and varying weight.

With respect to the method:

A plan to make a compensated dollar;

*i. e.*, to (virtually) increase the weight of the gold dollar to compensate for the depreciation of gold.

## THE INDEX NUMBER

	As it was		As it would have been		
	1896 base	Dec., 1903 base	Brassage 1%. Adjust- ments quarterly	Brassage 3%. Adjustments quarterly. Upward shift of redemption price limited to 1% quarterly	Brassage 1½%. Adjustments monthly. Upward shift of redemption price limited to ½% per month
1896	100.0	....	100.0	100.0	....
1903 December	....	100.0	....	....	100.0
1904 January ..	125.2	101.3	101.5	100.5	99.8
February ..	....	102.4	....	....	100.9
March ....	....	102.6	....	....	100.2
April .....	126.1	102.1	101.2	100.7	99.5
May .....	....	101.3	....	....	99.3
June .....	....	101.1	....	....	99.5
July .....	123.9	100.3	98.4	98.2	98.8
August ..	....	100.3	....	....	98.8
September	....	100.3	....	....	98.8
October ..	123.7	100.1	99.2	99.0	98.6
November	....	100.9	....	....	99.4
December	....	101.6	....	....	100.1
1905 January ..	126.1	102.1	102.0	102.0	100.4
April .....	126.8	102.6	101.5	100.5	99.7
July .....	126.4	102.3	100.2	99.7	100.2
October ..	130.0	105.3	102.9	102.9	100.8
1906 January ..	133.6	108.1	104.6	102.7	100.8
April .....	133.8	108.3	103.8	100.2	99.9
July .....	135.1	109.3	103.7	100.9	100.4
October ..	136.6	110.6	103.8	101.1	100.7
1907 January ..	141.5	114.5	106.4	103.6	102.0
July .....	144.1	116.7	106.2	100.9	100.2
1908 January ..	139.0	112.5	100.7	96.0	96.9
July .....	134.6	109.0	97.7	94.7	96.7
1909 January ..	137.2	111.0	101.6	98.6	100.3
1910 January ..	146.8	118.8	104.5	102.9	100.4
1911 January ..	142.6	115.4	98.5	98.5	98.9

- i. e.*, to change the status of gold coins to that of silver coins, — tokens, or mere “brass checks,” so to speak, entitling the holder to a varying quantity of gold bullion which would be the virtual dollar.
- i. e.*, to restore the ancient custom of seigniorage, but adjusted according to index numbers.
- i. e.*, to lower the mint-price of gold to keep pace with its actual depreciation.

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